Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

13 AUG 2003

Mr. Steve Zappe, WIPP Project Leader
Hazardous Waste Permits Program
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2905 E. Rodeo Park Drive, Bldg. 1
Santa Fe, NM 87505

Subject: Transmittal of Approved Waste Stream Profile Form SR-W027-221H-HET by the Central Characterization Project at Savannah River Site

Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office (CBFO) has approved the Waste Stream Profile Form SR-W027-221H-HET by the Central Characterization Project at Savannah River Site. Enclosed is a copy of the approved form as required by Section B-4(b)(1) of the WIPP Hazardous Waste Facility Permit No. NM4890139088-TSDF.

If you have any questions on this matter, please contact me at (505) 234-7357 or (505) 706-0066.

Sincerely,

for Kerry Watson

Kerry W. Watson
CBFO Assistant Manager
Office of National TRU Program

Enclosure

cc: w/o enclosure
J. Kieling, NMED
C. Walker, TechLaw
J. Bennett, WTS
M. Strum, WTS
K. Dunbar, WRES
L. Greene, WRES
S. Calvert, CTAC
CBFO M&RC

CBFO:NTP:KWW:VW:03-2279:UFC:5822

030822

Attachment 2B - Waste Stream Profile Form

(1) Waste Stream Profile Number:	SR-W027-221H-HET		
(2) Generator site name:	SRS	(3)Technical contact:	Sue Peterman
(3) Generator site EPA ID:	SC1890008989	(3) Technical contact phone number: 505-234-7506	
(4) Date of audit report approval by NMED: February 27, 2002			
(4) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, rev. 5, CCP Transuranic Waste Characterization Quality Assurance Project Plan, February 5, 2003; CCP-PO-002, rev. 5, CCP Transuranic Waste Certification Plan, February 12, 2003; CCP-PO-004, rev. 12, CCP/SRS Interface Document, April 8, 2003			
Did your facility generate this waste? ☐ Yes ☒ No		(5) If no, provide the name and EPA ID of the original generator: SRS, SC1890008989	
Waste Stream Information[1]			
(6) WIPP ID: SR-W027		(7) Summary Category Group: S5000	
(8) Waste Matrix Code Group: Heterogeneous Debris Waste		(9) Waste Stream Name: Heterogeneous Debris from 221H	
(10) Description from the TWBIR: SR-W027-221H-HE			
(11) Defense TRU Waste: ☒ Yes ☐No		(11) Check One:	☒CH ☐ RH
(11) Number of SWBs 0	(11) Number of Drums 4,905	(11) Number of Canisters 0	
(12) Batch Data report numbers supporting this waste stream characterization: See CIS Attachment 3 Table 1			
(13) List applicable EPA Hazardous Waste Codes:[2] D006, D008, D009, D019, D022, D029, D039, D040, D043, F001, F002, F003, F005 and U133			
(14) Applicable TRUCON Content Codes: SR225A, SR225C and SR225G			
Acceptable Knowledge Information[1]			
[For the following, enter supporting the documentation used (i.e., references and dates)]			
Required Program Information			
(15) Map of site: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Appendix A2, Figure A2-1 and A2-2			
(15) Facility mission description: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 4.1.4			
(15) Description of operations that generate waste: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 4.3			
(15) Waste identification/categorization schemes: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 4.4			
(15) Types and quantities of waste generated: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 5.2			
(15) Correlation of waste streams generated from the same building and process, as appropriate: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 4.2.2			
(15) Waste certification procedures: See CIS Attachment 3			
Required Waste Stream Information			
(16) Area(s) and building(s) from which the waste stream was generated: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 5.1			
(16) Waste stream volume and time period of generation: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 5.2			
(16) Waste generating process description for each building: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 4.3			
(16) Process flow diagrams: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 4.3, Figure 4-5, Figures A2-5 through A2-10			
(16) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-SRS-4, Rev. 1, March 21, 2003, Section 5.4			
Which Defense Activity generated the waste: (check one)			
☐ Weapons activities including defense inertial confinement fusion		☐ Naval Rectors development	
☐ Verification and control technology		☐ Defense research and development	
☐ Defense nuclear waste and material by products management		☒ Defense nuclear material production	
☐ Defense nuclear waste and materials security and safeguards and security investigations			

Attachment 2B – Waste Stream Profile Form (continued)

Supplemental Documentation	
(17) Process design documents: (See Attachment 1 for Source Document information) D042, P005	
(17) Standard operating procedures: (See Attachment 1 for Source Document Information) C008, C014, C145, D053, D054, D090, P002, P045, P046, P059, P061, P062, P063, P064, P067, P073, P088, P095, P097, P099, P105	
(17) Safety Analysis Reports: D039, D052, D057, D062, D076, P005	
(17) Waste packaging logs: C022, M014	
(17) Test plans/research project reports: C092, D053, D090	
(17) Site databases: D008, M044, M052, M082, M099	
(17) Information from site personnel: C038, C066, C088, C090, C094, C098, C104, C116, C138, C149, C150, C152, C156, C157, C158	
(17) Standard industry documents: D088, D094	
(17) Previous analytical data: C028, C080, C092, C096, C110, C111, C118, D032, D044, D063, D090, M048, M077, M082, M084	
(17) Standard industry documents: D088, D094	
(17) Material safety data sheets: C020, C048, M051	
(17) Sampling and analysis data from comparable/surrogate Waste: C118, M083, P096	
(17) Laboratory notebooks: M084	
(17) Sampling and Analysis Information[2]	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
	(18) Radiography: See CIS Attachment 3, page 2
	(18) Visual Examination: See CIS Attachment 3, page 2
	Headspace Gas Analysis
	(19) VOCs: See CIS Attachment 3, page 2
	(19) Flammable: See CIS Attachment 3, page 2
	(19) Other gases (specify): N/A
	Homogeneous Solids/Soils/Gravel Sample Analysis
	(20) Total metals: N/A
	(20) PCBs: N/A
	(20) VOCs: N/A
	(20) Nonhalogenated VOCs: N/A
	(20) Semi-VOCs: N/A
	(20) Other (specify): N/A

Waste Stream Profile Form Certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

(21) [signature] Sue Peterman 8/6/03

Signature of Site Project Manager | Printed Name | Date

NOTE: (1) Use back of sheet or continuation sheets, if required.
(2) If radiography, visual examination, headspace gas analysis, and/or homogeneous solids/soils/gravel sample analysis were used to determine EPA Hazardous Waste Codes, attach signed Characterization Information Summary documenting this determination.

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: SR-W027-221H-HET

Overview:

The SRS facility mission was to support national security as a major source of reactor-produced materials, primarily tritium, Pu, heavy water (deuterium), and other special nuclear materials for weapons manufacturing. TRU waste was generated in HB-Line from routine operational activities (housekeeping/cleaning, process equipment adjustments, radiological surveys, etc.) and preventive and corrective maintenance. Beginning in 1954, the SRS HB-Line facility produced Pu-239 for use in the assembly of atomic weapons. By the 1960's, other materials such as Pu-238 and Np-237 were produced for defense use.

This summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) Number SR-W027-221H-HET for Heterogeneous Debris Waste relating to the facility's history, configuration, equipment, process operations, and waste management practices. Information contained in this summary was obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents including SRS Burial Ground Records and databases, and interviews with operational and waste management personnel. Additional details are discussed in CCP-AK-SRS-4, *Central Characterization Project Acceptable Knowledge Summary Report for Savannah River Site Waste Streams: SR-W027-221H-HET, SR-W026-221H-HET-A, SR-W026-221H-HET-B, SR-W027-221H-HEPA, SR-T001-221H-HEPA, SR-W027-HBL-Box.*

Waste Stream Identification Summary:

Site Where TRU Waste Was Generated:	Savannah River Site
Waste Stream Name:	Heterogeneous Debris from HB Line
Waste Stream Number:	SR-W027-221H-HET
Dates of Waste Generation:	December 1972 – January 25, 1990
Facility Where TRU Waste Was Generated:	Building 221-H, HB Line
Waste Stream Volume:	4,905 55-gallon drums
Summary Category Group:	S5000 – Debris Waste
Waste Stream TWBIR Identification:	SR-W027-221H-HET (and waste re-assigned from SR-W027-221H-VIT[1])
Waste Stream MWIR Identification:	SR-W027
Site-Specific Item Description Code:	IDC 001 (Job control waste)
Waste Matrix Code Group:	Heterogeneous Debris Waste
RCRA Hazardous Waste Codes:	D006, D008, D009, D019, D022, D029, D039, D040, D043, F001, F002, F003, F005, and U133

[1] In the TWBIR the waste stream SR-W027-221H-VIT was assigned for a significant portion of the 221H waste stream as a waste stream that was to be vitrified resulting in significant volume reduction. However, vitrification of this waste stream is no longer the preferred option and the volume has been re-assigned to SR-W027-221H-HET.

Waste Matrix Code: S5440 – Predominantly Organic Debris

TRUPACT-II Content Code (TRUCON): SR225 A, SR225C, or SR225G

Waste Stream Description and Physical Form:

The HB-Line consisted of three major operations in both the old and new HB-Lines: Scrap recovery, NpO_2 production, and PuO_2 production.

HB-Line generates TRU waste containing Pu and Np during operations, the use of gloveboxes, contamination control huts, and from decontamination processes. TRU waste containing Pu-238, Np-237, Pu-239, and other radionuclides was also generated during decontamination operations, replacement of equipment, maintenance, inspection, and sampling.

The waste stream (job control waste – content code 001) is described as being 50 to 80%, by volume, organic. This waste stream is assigned the waste matrix code (WMC) S5440 "Predominantly Organic Debris" because the waste is predominantly organic waste.

Job control waste includes: paper, wipes, cloth rags, uniforms, cartons, gloves, miscellaneous wood, plastic film, sheeting, bottles, drum liners, windows, labware, sponges, miscellaneous rubber, plexiglas, leather, firebrick, glassware, ceramic, small tools, miscellaneous metal hardware, crucibles, pipes, tubing and fittings, instruments, motors, hot plates, and shipping containers.

Point of Generation

Location

The SRS is located in South Carolina on approximately 310 square miles. It is bounded on the southwest by the Savannah River and occupies parts of Aiken, Barnwell, and Allendale counties. The HB-Line facility is located inside the 221-H Building in the 200-H Area of the SRS.

Area and Building of Generation

All wastes from this waste steam were generated by the HB-Line facility located inside the 221-H Canyon Building.

Generating Processes

Description of Waste Generating Process

The wastes were generated in HB-Line as the result of operations related to processes involving production of reactor-produced materials for weapons manufacturing. The mission was broadened over the years to include the production of other radionuclides, such as Np-237 and Pu-238. The wastes in this waste stream were generated between December 1972 and January 1990.

Routine operational activities (housekeeping/cleaning, process equipment adjustments, radiological surveys, etc.) and preventive and corrective maintenance were the major waste producers. Other contributing activities included facility modifications; decontamination; sump cleanout; absorption of liquids; glove replacement on process cabinets and gloveboxes; various mechanical and electrical repairs; maintenance; changeouts of process equipment, piping, cabinet panels, and other equipment; and decontamination and removal of most of the Old HB-Line Gloveboxes.

Scrap Recovery: The scrap recovery process recovered U-235, Pu-238, and Np-237 from local and offsite scrap by dissolving the scrap and transferring the solution to the canyon for reprocessing. Chemicals used in the scrap recovery process include:

- Nitric acid was used to dissolve metals
- Aluminum nitrate was used in processing
- Nitric acid, ferrous sulfamate, aluminum nitrate, sodium nitrite, hydrazine mononitrate, mercuric acid and potassium fluoride were used in anion exchange
- Sodium nitrite was used to oxidize uranium
- Other cold feed chemicals that were used included potassium fluoride, aluminum nitrate, ferrous nitrate, hydrogen peroxide, and potassium permanganate

NpO_2 Production: The Np process received Np-237 solution separated by canyon operations. The process purified and concentrated the Np solutions by anion exchange, precipitated the Np as oxalate, and calcined the oxalate to Np-237 dioxide product. Chemicals used in the Np-237 oxide process include:

- Hydrazine (0.15M maximum) for precipitation of neptunium oxalate
- Nitric acid for precipitation of neptunium oxalate

PuO_2 Process: The Pu process received separated Pu-238 nitrate solutions and converted them to Pu dioxide powder by oxalate precipitation and calcination. The chemicals used in Pu-238 oxide processing include:

- Ascorbic acid and hydrazine mononitrate were used for plutonium valence adjustment
- Oxalic acid was used for precipitation and filtration
- Wash solution containing oxalic acid, hydrazine mononitrate, and ascorbic acid was used
- Hydrazine mononitrate was used as a reducing agent

Maintenance/Housekeeping Activities: Maintenance and housekeeping activities conducted on HB-Line included the following: lead-lined glove replacements (periodically and as needed); repair of leaks; filter changeouts; changing panels on cabinets and huts; equipment repair (valve replacements); inspection and cleaning of exhaust ducts to remove Pu accumulation; sump cleanout; floor sweeping; absorption of liquids; construction, breakdown and disposal of huts adjacent to cabinets; bagging trash out of gloveboxes and cabinets; and decontamination.

Other chemicals used for routine operations, maintenannce and decomissioning activities in the HB-Line include the following:

- Acetone used for degreasing and cleanup
- Carbon tetrachloride used in solvent extraction
- Cyclohexanone used as a solvent in cement
- Ethyl acetate used as a solvent in Magnaflux
- Methanol used as a solvent
- Methyl ethyl ketone used as a primary ingredient in cement and from non-specific sources
- Methylene chloride was used an ingredient in packaging adhesive [trade name Raycohesive B-84]
- Tetrachloroethylene used as a cleaner/degreaser [trade name Triclene]
- 1,1,1-Trichloroethane used as a cleaner/degreaser
- Trichloroethylene used as a cleaner/degreaser
- Trichlorotrifluoroethane used as a cleaner/degreaser
- Vinyl chloride from non-specific sources and assigned historically
- Chloroform from non-specific sources and assigned historically

- 1,1-Dichloroethylene from non-specific sources and assigned historically
- EZ Weld Gray PVC Cement – tetrahydrofuran, up to 30% Methyl Ethyl Ketone (MEK), and up to 10% cyclohexanone
- Magnaflux SKC-NF/ZC-7B Cleaner/Remover – 1,1,1-Trichloroethane
- SpotCheck Developer – 40% Ethyl Acetate, 30% Acetone, and up to 70% propanol in other formulations.

RCRA Determinations

Hazardous Waste Determinations

Waste generated in this facility does not qualify for any of the exclusions outlined in 40 CFR 260 or 261.

Ignitability

Ignitable materials are not present in HB-Line TRU waste. The waste does not exhibit the characteristic of ignitability as identified in 40 CFR 261.21. The waste materials do not contain liquids with a flashpoint <140^{O}F; non-liquids that can ignite under standard temperature and pressure and burn such that it is a hazard; ignitable compressed gases; and oxidizers as defined by the Department of Transportation.

Liquids with flashpoints <140°F were used in HB-Line but have been absorbed and are not present in the waste.

Non-liquids, such as ignitable metals are not present in the HB-Line process, associated activities that generated the waste, and are not in this waste stream.

Ignitable compressed gases were used in HB-Line but have been removed from this waste stream.

Oxidizers as defined by the Department of Transportation have been used throughout the time period of waste generation in operating areas where TRU waste has been generated or handled. This type of chemical, such as hydrogen peroxide, ferrous nitrate, nitric acid, permanganates, and aluminum nitrate were used, however, procedures required neutralization of acids and absorption of free liquids.

Only WIPP WAP compliant drums will be shipped to WIPP (i.e. as little residual liquid as is reasonably achievable with less than 1 inch of liquid in internal containers and less than 1% of the waste container volume).

Some chemicals described later to which the F003 hazardous waste code is applied, were used. The F003 code is applied to the waste stream because the solvents were used even though the only characteristic is for ignitability. However, as no liquids are allowed, the F-listed chemicals do not exist as liquids and therefore are not ignitable. The ignitability characteristic (D001) does not apply to this waste stream.

Corrosivity

Corrosive materials are not present in this waste stream. The waste does not exhibit the characteristic of corrosivity as identified in 40 CFR 261.22. The waste does not contain liquids with a pH less than or equal to 2, or greater than or equal to 12.5; or a liquid that corrodes steel. This waste is not an aqueous liquid. The corrosivity characteristic (D002) does not apply to this waste stream.

Reactivity

This waste stream does not exhibit the characteristic of reactivity as identified in 40 CFR 261.23. The waste materials are stable and will not react violently with water, form potentially explosive mixtures with water or generate toxic gases, vapors or fumes when mixed with water or contain cyanide or sulfide waste which when exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapors or fumes.

There were no reactive metals such as sodium, phosphorous, magnesium or calcium used as pure metal, although the HB-Line did use a non-reactive magnesium oxide. There are no non-radioactive pyrophoric materials or explosives in this waste.

Hydrazine mononitrate was identified as an HB-Line process chemical through the mid 1980s, having been used as a dissolution process catalyst. However, because it was a liquid, it would not have been placed in TRU waste containers without being absorbed; therefore the waste is not explosive or reactive.

This waste does not present a compatibility hazard due to the chemicals identified with each other with the packaging of the waste. Therefore, the waste code for reactivity (D003) is not assigned to this waste stream.

Toxicity

The wastes in this waste stream exhibit the characteristic of toxicity per 40 CFR 261.24 for some metal and organic contaminants.

Metals

The presence of RCRA toxicity characteristic metals cadmium (D006), chromium (D007), and lead (D008) were historically assigned to this waste stream based on information presented in the TWBIR and other programmatic documents used to assign waste codes for the waste stream SR-W027-221H-HET. These metals and mercury (D009) were further investigated as follows:

Cadmium (D006)

Cadmium was listed as a possible contaminant in HB-Line TRU waste. Cadmium was used in plates around the vessel vent system. Therefore, D006 has been assigned to the subject waste stream.

Chromium (D007)

The code for chromium was historically applied to the waste stream by the generator as a possible contaminant in the HB-Line TRU waste. However, the generator conducted TCLP testing on suspected chromium sources within the waste stream. The testing concluded that chromium is not part of the waste stream. Accordingly, the generator site removed this code from the waste. Therefore, D007 is not assigned to the waste stream.

Lead (D008)

Lead was used throughout the HB-Line as radiation shielding and in lead-lined gloves; therefore, D008 has been assigned to the waste stream. The lead in the TRU waste could be in the form of lead sheets and bricks or as a component of a piece of equipment, such as lead-lined cabinet gloves or leaded glass for cabinet panels. Only nonhazardous flashlight batteries were discarded as TRU waste; as a result, no lead-acid batteries are part of the waste stream.

Mercury (D009)

Mercury was identified in use for thermometers in non-routine operation such as tank calibration. In addition, mercury was used in manometers that were part of a vacuum system. Mercury has been identified as part of Uranium and Plutonium recovery processes (e.g., ion exchange, dissolution of Pu-Al). Based on the potential sources and other information summarized above, D009 has been assigned to the waste stream.

For methyl ethyl ketone discussed previously, the chemical content in the PVC cement was not used in amounts that would exceed the regulatory level of 200ppm for this waste stream and is therefore not assigned D035.

Carbon tetrachloride, chloroform, 1,1-dichloroethylene, tetrachloroethylene, trichloroethylene, and vinyl chloride were identified in the building chemical inventory and other documentation. Specific sources for these organic compounds have not been identified. There are no specific data to indicate the concentration of these constituents in the waste stream. Therefore, the following hazardous waste codes have been assigned to this waste stream: carbon tetrachloride (D019), chloroform (D022), 1,1-dichloroethylene (D029), tetrachloroethylene (D039), trichloroethylene (D040), and vinyl chloride (D043).

Listed Waste
F-Listed and Other Solvents

Based on previous chemical usage discussed above, the listed hazardous waste code for methyl ethyl ketone will be conservatively applied. The hazardous waste code for methylene chloride will not be assigned as its source is from a packaging adhesive.

The following hazardous numbers will be applied to the SR-W027-221H-HET TRU waste stream: F001: carbon tetrachloride, tetrachloroethylene, 1,1,1- trichloroethane, trichloroethylene, and trichlorofluoroethane; F002: tetrachloroethylene, 1,1,1-trichloroethane, trichloroethylene, and trichlorofluoroethane; F003: acetone, cyclohexanone, ethyl acetate, and methanol; and F005: methyl ethyl ketone.

U- and P-Listed Chemicals

Hydrazine mononitrate was used during anion exchange in Scrap Recovery and during Np oxalate precipitation; however, the maximum allowable concentration was 0.15M. However, it is also possible that pure liquid hydrazine may have contaminated spill cleanup residues following a spill and contamination events in Scrap Recovery. There is no unreacted pure hydrazine or hydrazine compounds in the waste stream based on the absence of liquids; however, based on past waste management practices, the hazardous waste number U133 will be assigned for hydrazine.

Conclusion

The following EPA hazardous waste numbers are assigned to waste stream SR-W027-221H-HET: D006, D008, D009, D019, D022, D029, D039, D040, D043, F001, F002, F003, F005, and U133.

Polychlorinated Biphenyls

No PCB containing components (e.g., PCBs in oil-filled electrical equipment , hydraulic oils containing PCBs, or fluorescent light ballasts containing PCBs) are present in this waste stream.

Prohibited Items

The absence of prohibited items is documented through confirmation activities. Radiography or visual examination is performed on each container in this waste stream to verify the absence of the following prohibited items:

- Liquids
- Non-radioactive pyrophoric materials
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, or other wastes
- Explosives or compressed gases
- PCBs in concentration greater than or equal to 50 ppm
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity
- Non-mixed hazardous wastes

None of the drums in Lot #1 were selected for visual examination as a quality control check for the RTR process; however, the drums in this waste stream are included as part of the random selection of drums for visual examination.

Headspace Gas/Volatile Organic Compound Information

Lot #1 of waste stream SR-W027-221H-HET consists of a total of 28 drums. Of the 28 drums, there were no samples above the PRQLs. There were 2 TICs in this lot, 2-methyl-2-propanol (CAS 75-65-0) in four drums and carbonic acid, monoammonium salt (CAS 1111-78-0), in one drum.

No hazardous waste codes were added to the waste stream based on headspace gas. The headspace gas sampling and analysis confirms the acceptable knowledge for this waste stream.

The specifics of this information are included in the attached Characterization Information Summary report.

Radionuclide Information

Radiological Characterization

Waste from this stream is contaminated primarily with Pu-238 and Np-237 waste consisting of the following radioisotopes and corresponding ranges of weight percent (wt %) distribution:

WIPP Tracked Radionuclides		Other Radionuclides	
Sr-90	Trace (defined as <2%)	Na-22	Trace
Cs-137	Trace	Th-232	0 to 100%
U-233	0 to 100%	U-232	Trace
U-234	Trace	Pa-233	Trace
U-238	0 to 80%	U-235	0 to 93%
Pu-238	0 to 100%	U-236	0 to 25%
Pu-239	0 to 100%	Pu-236	Trace
Pu-240	0 to 11%	Np-237	0 to 100%
Pu-242	Trace	Pu-241	0 to 5%
Am-241	0 to 5%	Am-243	Trace

Attachment 1 Source Documents

C008 Memo to V.G. Dickert, et. al.: Guidance for Continual Surveillance for Hazardous Waste, W.M. Wierzbicki, NMP-ST-900172, Westinghouse Savannah River Company, October 4, 1990.

C014 Memo to C.R. Goetzman: Annual Surveillance of HB-Line TRU Waste Certification Program, M.A. Ebra, OPS-WMT-890114, Westinghouse Savannah River Company, August 28, 1989.

C020 Memo: BH-38 Decontamination Material Mixup, W.M. Wierzbicki, SRS, March 20, 1990.

C022 Memo to J.P. Dickson: 1500 Cubic Feet Waste Box Repackaging (Revised), R.D. Burns, Du Pont, SRP, June 3, 1986.

C028 Memo to S.A. Yano: Estimation of Pu Isotopic in Waste From 221-H, Room 306, C.D. Denard, ESH-AL-892033, Westinghouse Savannah River Company, December 20, 1989.

C038 Memo to J.P. Duane re: 221-HB-Line History, G. "Blackie" Blackburn, November 17, 1977.

C048 TRU Mixed Waste Generation and Characterization, Letter from O.M. Morris, E.I. du Pont de Nemours & Company, Savannah River Plant, April 8, 1988.

C066 Interview of C. McClard Regarding the HB-Line Process Timeline, M. Frazer, November 14, 2002.

C080 Memo: Pb-Lined Gloves Telephone Call to O. Fordham, Letter to O. Fordham: Pb-Lined Gloves and Request for Concurrence to use the Exemption from Particle Size Reduction in the TCLP Method 11311 for Lead Lined Gloves (U), Memo from K. Wolfe, Letter from J.V. Odum, Letter: ESH-FSS-95-0140, Memo: Savannah River Site, Letter: Westinghouse Savannah River Company, Memo: May 30, 1996, Letter: March 17, 1995.

C088 Record of Communication – Interview of Mr. Odum and Mr. Maloney, J. Whitworth, December 4, 2001.

C090 Telephone Conversation with Carol Allgood, NMMD: Blue Dot Program at FB-Line and HB-Line, W.G. Estill, September 9, 2002.

C092 Summary of Correspondence on Dewatering Effort, Memo from S. Mertz to D. Wolfe re: TRU Dewatering Waste Disposal

C094 Record of Communication - Interview with Mr. Sogge RE: TRU Waste Generation in Old HB-Line, G.F. Lunsford, J.W. Barber, December 12, 2002.

C096 Letter re: Shipment of Pu-242 Oxide to Lawrence Livermore Laboratory, J.L. Womack, April 27, 1981.

C098 Record of Communication for Interview of K. Menger, T. Reilly, S. Bowers, and E. Dillon, J. Whitworth, J. Lunsford, CCP-TP-005, Rev. 10, December 10, 2002.

C104 Notes from Interview of J. "Chip" McClard, S. Ross, Unpublished, July 24, 2002.

C110 Letter to R.D. Leedle: Savannah River Plant Project S-2256 - Replace Obsolete Processing Facilities 221-HB-Line DA-221-H Plutonium-238 Oxide Product Quality, C.C. Robbins, A.S. Barab, November 4, 1980.

C111 Memo to S.J. Snyder: Origin of Material Charged in HB-Line to Support Cassini, R.Y. Jacobson, NMP-EHB-940173, July 29, 1994.

C116 Record of Communication with Mike Mobley, J. Whitworth, November 20, 2002.

C118 Memo to E.R. Russell: HB-Line Measurement Bias Effect on Plutonium (Pu-238) Quantities in Culverts (i.e., impact of segmented gamma scan (SGS) measurements versus gamma pulse height analysis (PHA) measurements) (U), G.F. Molen, SWE-SWE-96-0177, Revision 1, May 21, 1996.

C138 PCB Committee: Meeting No. 1, June 1981.

C139 RCRA Characterization of SRS-Produced Plutonium Oxide, R.A. Vohden, NMSD-EHB-970073, March 12, 1997.

C145 Letter to M.G. O'Rear: Non-radionuclide Inventory Data for WIPP Performance Assessment Activities – Revision 1, O. Morris, December 1, 1988.

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C152 Record of Communication for Interview with G. Blackburn, B. Smith, C. McClard, C. Byrd, and F. Loudermilk, J. Whitworth, Revision 0, Unpublished, August 29, 2002.

C156 Record of Communication: Interview of Bob Smith, Rick Burns, and Jim Barber, Subject: TRU Waste and Hazardous Chemical Usage in the New HB-Line, Interviewed by Julia Whitworth, January 9, 2003.

C157 Record of Communication: Interview of Ray Smith and Bettie Bush, Subject: Use of Chemicals (Acetone) by HBL Maintenance, Interviewed by Julia Whitworth, January 9, 2003.

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D054 Thorium Processing in 221-H Technical Standards, DPSTS-221H-TH, E.I. Du Pont De Nemours & Company Savannah River Laboratory, May 1970.

D057 Safety Analysis - 200 Area Savannah River Plant. Separations Area Operations; Building 221-H, B-Line Vault in Room 556. (Addendum to Sup 2C), Ray Lux, DPSTSA-200-10 Sup 2C Add 1, E.I. Du Pont de Nemours & Co, 9/86.

D062 Recovering U-235 and Pu-238-Pu-239 in Building 221-H, DPSTS-221H-Pu-U, E.I. Du Pont De Nemours & Co. Explosives Department, 12/31/68.

D063 Pu-236 Impurities in Pu-238 Oxi, Kyser, E.A., DPST-88-XXX, December 9, 1988.

D076 Technical Standard for the Management of Radioactive Waste at the SRP Storage/Disposal Facilities 643-7G, 643-29G, 709-2G, O.A.Towler, DPST-88-48-33, Revision 1, 3/10/89.

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D090 Test Authorization No. 2-917 for Cleanup of Room 311 Sumps, T. Reilly, DPSOX 8876, Unpublished, December 28, 1976.

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M052 COBRA Database Update, Steve Mentrup, January 2002.

M077 HB-Line LAP Analytical Data.

M082 Clarification of Scrap Declaration, Wayne R. Amos, 8/5/91.

M083 Storage Configurations, Mound Scrap Material that was Used in Cassine, Pre December 2002.

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P002 CMC Analysis/Operation/Maintenance OJT Guide, Trainee Study Guide, SS061145, 1.

P005 Accessing High Radiation Areas (U), NOP 221-HB-4024, 1, 6/11/97.

P045 Packaging and Disposing of Dry Radioactive Waste, DPSTP-R-141, Savannah River Laboratory, November 1974.

P046 DPSOP 40 History File - Special Products HB-Line; Chapters I, II, III, V, & VII, DPSOP 105, Chapters 1-3, 5, 7, Revisions 6-10, E.I. Du Pont de Nemours and Company, SRP, September 1964 to August 1966.

P059 Handling Transuranium Waste in 221-H Canyon & 211-H Facility, Separations Department, DPSOL 221-H-8028, Revision 0, Separations Department, November 1974.

P061 Identifying TRU Drums With Missing Container ID Tags (U), Solid Waste Management Facility Operating Procedure, 643-E-88, Q-R-S-NCSC, Revision 3, August 7, 2001.

P062 Burying Classified Waste at Building 643-G, Separations Department, Waste Handling Facilities, DPSOL 643-G-2012, Revision 3, Separations Department, Waste Handling Facilities, March 1978.

P063 Handling Radioactive Waste, Separations Department, DPSOL 221-HB-2393, Revision 0, Separations Department, Estimated Date is July 1974.

P064 Completing TRU Waste Burial Records, Separations Department, DPSOL 221-HB-2422, Revision 1, March 1982.

P067 Cabinet Bag Port Operations, Separations Department, DPSOL 221-HB-2315, Revision 4, January 1983.

P073 Completing TRU Waste Burial Records and TRU Waste Data Package, Corbett, R.D., D-103, REF 221-HB-4725, Revision 5, 6, 7, 8, March 31, 1991, 3/17/93 to 1/12/99.

P088 Packaging TRU Waste and Sealing Drums, DPSOL 241-FH-2020, July 1975.

P095 Operating the Gamma Pulse Height Analyzer for U-235 Waste, Separations Department, DPSOL 221-HB-2299, Revision 0, Separations Department, September 1975.

P096 Operating Gamma Pulse Height Analyzer for Pu-238 Waste, Separations Department, DPSOL 221-HB-2298, Revision 0, Separations Department, September 1975.

P097 Operating the Gamma Pulse Height Analyzer for Np-237 Waste, Separations Department, DPSOL 221-HB-2297, Revision 0, Separations Department, September 1975.

P099 Removing Product from Mechanical Line, Separations Department, DPSOL 221-HB-2070, Revision 4, Separations Department, July 1982.

P105 Dissolution of Fissile Scrap, DPSOL 221-HB-5270, 2, Westinghouse Savannah River Company, 07/06/1989.

CHARACTERIZATION INFORMATION SUMMARY

There are drums in Lot 1 that are designated for Overpacking / Load Management purposes only. Refer to the Correlation of Container Identification Numbers to identify these containers.

SR-W027-221H-HET , LOT 1

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Waste Stream Lot Number: SR-W027-221H-HET Lot 1

AK Expert Review: Julia Whitworth Date: 5/7/03

STR Review (if necessary): N/A Date: 5/6/03

SPQAO Review: Date: 05-02-2003

SPM Review: Mark Peaney Date: 5/2/2003

SPQAO signature indicates that the information presented in this package is consistent with analytical batch reports.

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:
Radiography:
CCP-TP-011, CCP Radiography Inspection Operating Procedures, May 16,2002
CCP-TP-011, CCP Radiography Inspection Operating Procedures, October 18, 2001
CCP-TP-011, CCP Radiography Inspection Operating Procedures, August 29, 2001
CCP-TP-011, CCP Radiography Inspection Operating Procedures, August 1, 2001
CCP-TP-011, CCP Radiography Inspection Operating Procedures, July 2, 2001
CCP-TP-011, CCP Radiography Inspection Operating Procedures, June 1, 2001
CCP-TP-011, CCP Radiography Inspection Operating Procedures, May 21, 2001
CCP-TP-011, CCP Radiography Inspection Operating Procedures, April 27, 2001

Visual Examination:
SW15.7-SOP-TVEF-01, TVEF Operations, September 30, 2002
SW15.7-SOP-Weigh-01, June 4, 2001

Headspace Gas Analysis:
CCP-TP-007, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure, February 3, 2003
CCP-TP-007, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure, October 18, 2002
CCP-TP-007, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure, September 26, 2002
CCP-TP-007, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure, September 4, 2002
CCP-TP-007, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure, July 23, 2002
CCP-TP-007, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure, January 28, 2002
CCP-TP-007, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure, December 7, 2001
CCP-TP-007, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure, August 30, 2001

CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, February 5, 2003
CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, September 26, 2002
CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, September 20, 2002
CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, January 30, 2002

Attachment 3 – Characterization Information Summary Cover Page

CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, September 4, 2001
CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, August 28, 2001
CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, July 30, 2001
CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, July 20, 2001
CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, June 4, 2001
CCP-TP-009, CCP Single Sample Manifold Data Handling Procedure, April 24, 2001

CCP-TP-029, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration, February 12, 2003
CCP-TP-029, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration, October 18, 2002
CCP-TP-029, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration, September 26, 2002
CCP-TP-029, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration, September 20, 2002
CCP-TP-029, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration, January 30, 2002
CCP-TP-029, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration, October 9, 2001
CCP-TP-029, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration, August 28, 2001
CCP-TP-029, CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration, July 30, 2001

CCP-TP-032, CCP Single Sample Manifold Data Validation Procedure, February 3, 2003
CCP-TP-032, CCP Single Sample Manifold Data Validation Procedure, October 1, 2002
CCP-TP-032, CCP Single Sample Manifold Data Validation Procedure, September 26, 2002
CCP-TP-032, CCP Single Sample Manifold Data Validation Procedure, September 20, 2002
CCP-TP-032, CCP Single Sample Manifold Data Validation Procedure, January 29, 2002
CCP-TP-032, CCP Single Sample Manifold Data Validation Procedure, August 28, 2001
CCP-TP-032, CCP Single Sample Manifold Data Validation Procedure, July 22, 2001
CCP-TP-032, CCP Single Sample Manifold Data Validation Procedure, June 14, 2001
CCP-TP-032, CCP Single Sample Manifold Data Validation Procedure, April 24, 2001

Data Generation Review (SRS):

WP-AP-0016, WIPP Disposal Program Data Generation Level Review for Visual Examination, February 15, 2001

Project Level Data Validation/DQO Reconciliation:
CCP-TP-001, CCP Project Level Data Validation and Verification, February 3, 2003
CCP-TP-001, CCP Project Level Data Validation and Verification, May 15, 2002
CCP-TP-001, CCP Project Level Data Validation and Verification, March 8, 2002
CCP-TP-001, CCP Project Level Data Validation and Verification, December 14, 2001
CCP-TP-001, CCP Project Level Data Validation and Verification, August 27, 2001
CCP-TP-001, CCP Project Level Data Validation and Verification, July 23, 2001
CCP-TP-001, CCP Project Level Data Validation and Verification, May 25, 2001
CCP-TP-001, CCP Project Level Data Validation and Verification, April 23, 2001

CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, April 30, 2003
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, October 24, 2002
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, June 19, 2002
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, June 6, 2002
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, March 7, 2002
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, February 18, 2002
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, January 21, 2002
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, October 4, 2001
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, September 13, 2001
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, August 2, 2001
CCP-TP-002, CCP Reconciliation of DQOs and Reporting Characterization Data, June 2, 2001

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CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, January 25, 2003
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, January 20, 2003
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, December 4, 2002
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, October 10, 2002
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, August 23, 2002
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, June 3, 2002
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, March 20, 2002
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, March 18, 2002
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, January 17, 2002
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, November 1, 2001
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, October 4, 2001
CCP-TP-003, CCP Sampling Design and Data Analysis for RCRA Characterization, August 1, 2001

CCP-TP-030, CCP WWIS Data Entry and TRU Waste Certification, March 26, 2003
CCP-TP-030, CCP WWIS Data Entry and TRU Waste Certification, January 8, 2003
CCP-TP-030, CCP WWIS Data Entry and TRU Waste Certification, September 19, 2002
CCP-TP-030, CCP WWIS Data Entry and TRU Waste Certification, June 27, 2002
CCP-TP-030, CCP WWIS Data Entry and TRU Waste Certification, May 21, 2002
CCP-TP-030, CCP WWIS Data Entry and TRU Waste Certification, October 24, 2001
CCP-TP-030, CCP WWIS Data Entry and TRU Waste Certification, October 10, 2001
CCP-TP-030, CCP WWIS Data Entry and TRU Waste Certification, September 5, 2001
CCP-TP-030, CCP WWIS Data Entry and TRU Waste Certification, June 8, 2001

WAP Certification:
CCP-PO-001 CCPTransuranic Waste Characterization Quality Assurance Project Plan, February 5, 2003
CCP-PO-001 CCPTransuranic Waste Characterization Quality Assurance Project Plan, May 31, 2002
CCP-PO-001 CCPTransuranic Waste Characterization Quality Assurance Project Plan, January 14, 2002
CCP-PO-001 CCPTransuranic Waste Characterization Quality Assurance Project Plan, July 27, 2001
CCP-PO-001 CCPTransuranic Waste Characterization Quality Assurance Project Plan, May 10, 2001
CCP-PO-001 CCPTransuranic Waste Characterization Quality Assurance Project Plan, February 27, 2001

CCP-PO-002 CCP Transuranic Waste Certification Plan, February 12, 2003
CCP-PO-002 CCP Transuranic Waste Certification Plan, May 17, 2002
CCP-PO-002 CCPTransuranic Waste Certification Plan, January 21, 2002
CCP-PO-002 CCPTransuranic Waste Certification Plan, July 27, 2001
CCP-PO-002 CCPTransuranic Waste Certification Plan, May 10, 2001
CCP-PO-002 CCPTransuranic Waste Certification Plan, March 7, 2001

CCP-PO-004 CCP/SRS Interface Document, April 8, 2003
CCP-PO-004 CCP/SRS Interface Document, September 20, 2002
CCP-PO-004 CCP/SRS Interface Document, June 27, 2002
CCP-PO-004 CCP/SRS Interface Document, May 9, 2002
CCP-PO-004 CCP/SRS Interface Document, February 8, 2002
CCP-PO-004 CCP/SRS Interface Document, November 2, 2001
CCP-PO-004 CCP/SRS Interface Document, October 18, 2001
CCP-PO-004 CCP/SRS Interface Document, September 17, 2001
CCP-PO-004 CCP/SRS Interface Document, September 10, 2001
CCP-PO-004 CCP/SRS Interface Document, August 17, 2001
CCP-PO-004 CCP/SRS Interface Document, June 14, 2001
CCP-PO-004 CCP/SRS Interface Document, June 7, 2001
CCP-PO-004 CCP/SRS Interface Document, April 24, 2001

Attachment 3 Table 1 - Correlation of Container Identification Numbers to Batch Data Report Numbers

Correlation of Container Identification Numbers to Batch Data Report Numbers							
Container ID Number	On-Line Headspace Gas BDR	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids analytical BDR	Load Management / Overpacking
SR164760	030603A	SRNDA001	SRRTR0429	N/A	N/A	N/A	
SR164781	030603B	SRNDA002	SRRTR0429	N/A	N/A	N/A	
SR176754	022003A	SRNDA002	SRRTR0428	N/A	N/A	N/A	Yes
SR176782	031303B	SRNDA004	SRRTR0444	N/A	N/A	N/A	Yes
SR176793	030503A	SRNDA001	SRRTR0429	N/A	N/A	N/A	
SR176807	031903B	SRNDA004	SRRTR0444	N/A	N/A	N/A	Yes
SR176835	030603B	SRNDA002	SRRTR0429	N/A	N/A	N/A	Yes
SR202701	031903B	SRNDA004	SRRTR0443	N/A	N/A	N/A	Yes
SR202703	031403A	SRNDA004	SRRTR0444	N/A	N/A	N/A	
SR215178	030603B	SRNDA001	SRRTR0429	N/A	N/A	N/A	Yes
SR216291	030603B	SRNDA001	SRRTR0429	N/A	N/A	N/A	Yes
SR216454	031303A	SRNDA004	SRRTR0443	N/A	N/A	N/A	Yes
SR282238	030603A	SRNDA001	SRRTR0429	N/A	N/A	N/A	Yes
SR282274	030603B	SRNDA001	SRRTR0429	N/A	N/A	N/A	
SR513888	031903B	SRNDA004	SRRTR0444	N/A	N/A	N/A	
SR513890	031403B	SRNDA004	SRRTR0444	N/A	N/A	N/A	
SR526193	022003A	SRNDA002	SRRTR0428	N/A	N/A	N/A	
SR526194	030603A	SRNDA001	SRRTR0428	N/A	N/A	N/A	
SR526205	030603A	SRNDA002	SRRTR0429	N/A	N/A	N/A	Yes
SR526214	030603A	SRNDA002	SRRTR0429	N/A	N/A	N/A	
SR526235	030603A	SRNDA001	SRRTR0429	N/A	N/A	N/A	
SR526254	030603B	SRNDA002	SRRTR0429	N/A	N/A	N/A	
SR526256	030603B	SRNDA002	SRRTR0429	N/A	N/A	N/A	
SR540551	031403B	SRNDA004	SRRTR0444	N/A	N/A	N/A	
SR540562	022003A	SRNDA002	SRRTR0428	N/A	N/A	N/A	
SR540580	022503A	SRNDA001	SRRTR0428	N/A	N/A	N/A	Yes

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Correlation of Container Identification Numbers to Batch Data Report Numbers							
Container ID Number	On-Line Headspace Gas BDR	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids analytical BDR	Load Management / Overpacking
SR540583	031403B	SRNDA004	SRRTR0444	N/A	N/A	N/A	
SR540590	022503A	SRNDA001	SRRTR0429	N/A	N/A	N/A	

Approved by:

Mark Pearcy
Signature of Site Project Manager

Mark Pearcy
Printed Name

5/2/2003
Date

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Attachment 2 - UCL_{90} Evaluation Form

WSPF #:	SR-W027-221H-HET				Waste Stream Lot Number:	1					
ANALYTE	Transform Data Used (No, Data-Log, SQTI, other)	# Samples	# Samples above MDL	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	LOG	28	1	1.70	0.15	0.52	0.28	10	2.30		
Bromoform	NO	28	0	1.10	1.00	0.10	1.03	10	N/A		
Carbon tetrachloride	NO	28	0	1.22	1.00	0.23	1.05	10	N/A		
Chlorobenzene	NO	28	0	1.35	1.25	0.10	1.27	10	N/A		
Chloroform	NO	28	0	1.28	1.26	0.02	1.27	10	N/A		
Cyclohexane[a]	N/A	0	—	—	—	—	—	—	N/A		
1,1-Dichloroethane	LOG	28	1	1.89	0.19	0.41	0.30	10	N/A		
1,2-Dichloroethane	NO	28	0	1.71	1.26	0.46	1.37	10	N/A		
1,1-Dichloroethylene	NO	28	0	1.40	1.21	0.19	1.25	10	N/A		
cis-1,2-Dichloroethylene	NO	28	0	1.82	1.45	0.38	1.55	10	N/A		
trans-1,2-Dichloroethylene	NO	28	0	1.19	1.07	0.12	1.10	10	N/A		
Ethyl benzene	NO	28	0	1.75	1.32	0.43	1.43	10	N/A		
Ethyl ether	NO	28	0	1.58	1.36	0.22	1.41	10	N/A		
Formaldehyde[c]	N/A	0	—	—	—	—	—	10	N/A		
Hydrazine[c]	N/A	0	—	—	—	—	—	10	N/A		
Methylene chloride	LOG	28	3	2.47	0.91	0.53	1.04	10	2.30		
1,1,2,2-Tetrachloroethane	NO	28	0	1.63	1.52	0.12	1.55	10	N/A		
Tetrachloroethylene	NO	28	0	2.17	1.42	0.76	1.60	10	N/A		
Toluene	LOG	28	4	2.19	0.39	0.45	0.50	10	2.30		
1,1,1-Trichloroethane	LOG	28	8	4.82	0.50	2.23	1.06	10	2.30		
Trichloroethylene	NO	28	0	1.27	0.99	0.29	1.06	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	NO	28	0	1.55	1.32	0.23	1.38	10	N/A		
1,2,4-Trimethylbenzene[a]	N/A	0	—	—	—	—	—	—	N/A		
1,3,5-Trimethylbenzene[a]	N/A	0	—	—	—	—	—	—	N/A		

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Attachment 2 - UCL_{90} Evaluation Form (continued)

ANALYTE	Transform Data Used (No, Data-Log, SQRI, other)	# Samples	# Samples above MDL	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
m-Xylene[b]	NO	28	0	2.57	1.78	0.81	1.98	10	N/A		
p-Xylene[b]	NO	28	0	2.57	1.78	0.81	1.98	10	N/A		
o-Xylene	NO	28	0	0.94	0.89	0.05	0.91	10	N/A		
Acetone	LOG	28	3	3.73	1.77	0.58	1.92	100	4.61		
Butanol	NO	28	0	9.46	7.80	1.70	8.22	100	N/A		
Methanol	NO	28	0	6.42	4.50	1.96	4.99	100	N/A		
Methyl ethyl ketone	LOG	28	5	2.54	1.93	0.33	2.01	100	4.61		
Methyl isobutyl ketone	NO	28	0	5.48	4.07	1.44	4.42	100	N/A		

[a]These compounds are from the TRAMPAC and are flammable VOCs that do not appear in the QAPjP or the WIPP WAP. These are not part of the target analysis list, but samples may be analyzed for these compounds.
[b]These xylene isomers cannot be resolved by the analytical methods employed in the program. M-xylene and p-xylene will be reported as "Total m-p-Xylene."
[c]Required only for homogenous solids and soil/gravel waste from Los Alamos National Laboratory and Savannah River Site.
[d]Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

Comments:

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Attachment 3 Table 2 - Headspace Gas Summary Data

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
2-methyl 2-propanol	89.5	4	14.3
Carbonic acid, monoammonium salt	275	1	3.57

Data confirms Acceptable Knowledge?	Yes	☒	No	☐

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature Mark Pearcy MARK PEARCY Date: 5-2-2003

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Attachment 3 Table 6 – RTR/VE Summary of Prohibited Items and AK Confirmation

Container Number	RTR Prohibited Items[a]	Visual Examination Prohibited Items[a]	AK Confirmation[bc]
N/A Lot 1 SR-W027-221H-HET	None None of the containers in this Lot had a prohibited item detected in the Radiography/NDE process.	None of the containers in this Lot underwent Visual Examination.	Consistent with CCP-TP-005 Attachment 10

a. See Batch Data Reports
b. Attachment 10 of CCP-TP-005, *CCP Acceptable Knowledge Documentation*
c. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

SPM Signature: Mark Pearcy Printed Name: MARK PEARCY Date: 5-2-2003

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Attachment 1B - Reconciliation with Data Quality Objectives

SPQAO Sampling Completeness
RTR:
Number of valid samples: 28 Number of total samples analyzed: 28
Percent Complete: 100 (QAO is ≥100%)
NDA:
Number of valid samples: 28 Number of total samples analyzed: 28
Percent Complete: 100 (QAO is ≥100%)
HSG:
Number of valid samples: 28 Number of total samples collected: 28
Percent Complete: 100 (QAO is ≥90%)
Number of valid samples: 28 Number of total samples analyzed: 28
Percent Complete: 100 (QAO is ≥90%)
SPAO Signature and Date: John M. Hall 05-02-2003
I certify that sufficient data have been collected to determine the following Program-required waste parameters:

WSPF# SR-W027-221H-HET Lot# 1

	YN/NA	Reconciliation Parameter
1.	Y	Waste Matrix Code.
2.	Y	Waste Material Parameter Weights.
3.	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterized the waste.
4.	Y N (1)	The TRU activity reported in the BDR's for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5.	Y	Potential Flammability. Is there sufficient AK or analytical data to demonstrate that the waste meets that potential flammability limits (Headspace Gas, BDR and Summary Sheet)?
6.	Y (2)	Mean concentrations, upper 90% confidence limit (UCL_{90}) values for the mean concentration, standard deviation, and the number of samples collected for each VOC in the headspace gas of each container were calculated and compared with the program required quantitation limits, as reported in Attachment 2 to CCP-TP-003, and additional EPA Hazardous Waste codes were assigned as required. Samples were randomly collected (when appropriate).

Attachment 1B - Reconciliation with Data Quality Objectives (continued)

7a.	N/A (3)	Mean concentrations, UCL_{90} values for the mean concentration, standard deviation, and the number of samples collected for total **VOCs** were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary Table 3, and additional EPA Hazardous Waste codes were assigned as required. Samples were randomly collected.
7b.	N/A (3)	Mean concentrations, upper 90% confidence limit (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for **total SVOCs** were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary Table 4, and additional EPA Hazardous Waste codes were assigned as required. Samples were randomly collected.
7c.	N/A (3)	Mean concentrations, upper 90% confidence limit (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for **total metals** were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary Table 5, and additional EPA Hazardous Waste codes were assigned as required. Samples were randomly collected.
8.	Y	The data demonstrates whether the waste stream exhibits are toxicity characteristic under 40 CFR 261, Subpart C.
9	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
10.	Y	Sufficient number of waste containers have been visually examined to determine the UCL_{90} for the miscertification rate is less than 14%.
11.	Y	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12.	Y	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13.	Y	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data report.
		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam of waste stream lot.

		Completeness	Comparability	Representativeness
	Radiography	Y	Y	Y

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Attachment 1B - Reconciliation with Data Quality Objectives (continued)

		Headspace Gas Sampling And Analysis	N/A (4)	N/A (4)	N/A (4)
		Headspace Gas Analysis	Y	Y	Y
14.		Solids Sampling	N/A (3)	N/A (3)	N/A (3)
		Total VOCs	N/A (3)	N/A (3)	N/A (3)
		Total SVOCs	N/A (3)	N/A (3)	N/A (3)
		Total Metals	N/A (3)	N/A (3)	N/A (3)

Mark Pearcy — Signature of Site Project Manager
MARK PEARCY — Printed Name
5/2/2003 — Date

(1) There are drums in Lot 1 designated for Overpacking / Load Management purposes only. Refer to the Correlation of Container Identification Numbers to Batch Data Report Numbers to identify these drums.

(2) No additional EPA Hazardous Waste Codes assigned.

(3) Not analyzing homogeneous waste, this waste is not from a S3000 or S4000 Waste Matrix Group.

(4) On line sampling system.